Exploring Eco-anxiety: Experiences and Coping Strategies among Young People

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Snr 2098016

Master's Thesis

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June 2023

Acknowledgements

I would like to express my gratitude to my supervisors Dr. Schuyler Laparle and Dr. Ruud Koolen for their guidance, support, and encouragement throughout the process of conducting this research and writing this thesis. Their expertise and insightful feedback have been instrumental in shaping this study. I am also grateful to the participants who generously dedicated their time and shared their experiences. Their willingness to engage in interviews and provide valuable insights has been crucial in enriching the findings of this research. Without their contributions, this study would not have been possible.

Abstract

This study aimed to understand how young people with vicarious reactions to climate change experience eco-anxiety and explore the coping strategies they employ. To examine this, a total of 7 interviews with individuals between the ages of 18-25 were conducted. The results indicated that the participants experienced feelings of concern, helplessness, powerlessness, pessimism, sadness, frustration, anger, and guilt. In addition, going through heat waves heightened feelings of vulnerability, concern, and fear about the future among the interviewees. Blaming humans and companies also emerged as a manifestation of eco-anxiety. Furthermore, some participants perceived a panic-inducing or aggressive tone in climate change-related posts on social media. Nearly all participants employed multiple coping strategies to deal with their eco-anxiety. Among these strategies, emotion-focused approaches, particularly distancing, were the most frequently mentioned. The findings of this study have implications for the development of theories on eco-anxiety and can assist mental health professionals in designing effective protocols to support individuals experiencing this phenomenon.

Keywords: eco-anxiety, climate change psychological impacts, coping strategies, young people, interviews

Introduction

Climate change is considered by many to be among the most severe global health risks of the century, placing human health in jeopardy on a global scale (Watts et al., 2018). Even though researchers have studied the impact of climate change on human physical health through its adverse effects on environmental and social determinants (Watts et al., 2019), the psychological consequences of climate change have received less scrutiny. One of these psychological consequences is eco-anxiety.

Eco-anxiety has been defined by the American Psychological Association as "a chronic fear of environmental doom" that, among other impacts, can lead to feelings of hopelessness, despair, and helplessness, and may contribute to the development of anxiety disorders, depression, and other mental health conditions (Watts et al., 2018). Therefore, understanding eco-anxiety is important, as it may become a public health challenge (Léger-Goodes et al., 2022).

The majority of studies examining eco-anxiety have concentrated on the direct effects of climate change on mental health, which are those that occur after personally going through an extreme weather incident (Léger-Goodes et al., 2022). However, observing the consequences of climate change through media, rather than experiencing it directly, can also impact mental health. Experiencing this feeling of distress simply by being aware of the environmental crisis is described by Berry et al. (2010) as a vicarious reaction. Scholars are beginning to document cases in which individuals with this type of reaction are experiencing feelings of being overwhelmed, resulting in symptoms such as insomnia, panic attacks, or obsessive thoughts (Clayton et al., 2017; Usher et al., 2019). Interestingly, the consensus in the literature is that the majority of eco-anxiety is due to having a general understanding of climate change, rather than having suffered a direct impact of an environmental-related issue (Brophy et al., 2022). Regardless, the

vicarious psychological impacts of climate change are still an understudied topic, particularly among young individuals (Cunsolo et al., 2020).

Young people (i.e., children, adolescents, and young adults) are more vulnerable to eco-anxiety because they typically have a greater awareness of the impacts of climate change compared to older generations (Gislason et al., 2021; Martin et al., 2021). Given that youth are likely to suffer the negative impacts of climate change in the future, it can be contended that involving this demographic in research concerning eco-anxiety is vital. In fact, some scholars are worried that the burden of eco-anxiety on young individuals (specifically those aged 16-25) can have detrimental effects on their mental well-being, such as depression, despair, and pessimism (Hickman et al., 2021; Kelly, 2017). Furthermore, there is a growing concern that such negative impacts on mental health could lead to reduced involvement in environmental matters (Ojala, 2012b; Stevenson & Peterson, 2015). It could be argued that this inactivity could have a direct impact on the environment's future, which could in turn perpetuate experiences of eco-anxiety.

Despite evidence of the negative impacts of eco-anxiety on youth and their concerns, there is a lack of research examining young people's experiences with eco-anxiety (Coffey et al., 2021). Therefore, this study aims to build on the aforementioned literature by diving deeper into how young individuals (defined in this study as individuals between the ages of 18–25) understand climate change, their experiences going through weather events caused by it, and the psychological impacts it has had on them. Moreover, to my knowledge, no previous study has focused on studying the experiences (i.e., emotions, feelings, and negative physical behaviors that individuals have in response to climate change) of young people who have only experienced

climate change vicariously. Hence, the current study aims to answer the following question:

RQ1: How do young people with vicarious reactions to climate change experience eco-anxiety?

People who experience eco-anxiety need coping mechanisms to deal with it. Researchers defend that the manner in which individuals cope on a psychological level with climate change can affect both their emotional wellness and level of environmental engagement (i.e., it can increase or decrease it). This may be especially true in younger individuals (Ojala, 2012a, 2013; Ojala & Bengtsson, 2019). Although much remains to be learned about this, Ojala (2012a) found that using meaning-focused strategies, which in this matter refers to using values and beliefs to foster positive feelings and find purpose, while still acknowledging the issue of climate change and accepting that it cannot be solved instantly, is linked with pro-environmental behavior and an overall positive affect. Hence, understanding the coping mechanisms that individuals use is an important aspect of investigating the experiences of eco-anxiety. Although the body of literature that explores this is very limited, gaining knowledge about which strategies young people are employing to cope with this issue could be useful for two reasons. Firstly, it would provide a better understanding of eco-anxiety and its consequences for young individuals, as well as help in the development of scientific theory in this area. Secondly, it would help mental health professionals in designing programs to guide their patients in dealing with eco-anxiety. Thus, this part of the study intends to extend the knowledge on coping with eco-anxiety by answering the following question:

RQ2: Which strategies do young people with vicarious reactions to climate change use to cope with eco-anxiety?

Theory and Literature

This literature review aims to examine the existing literature and provide a theoretical framework for understanding the experiences of eco-anxiety in young people with vicarious reactions to climate change. It also seeks to explore the coping mechanisms that they might use. Specifically, this review will explore the significance of young people in eco-anxiety research, vicarious reactions to climate change, psychological effects of eco-anxiety, contextual factors that may influence eco-anxiety experiences, and the coping strategies that may be used for managing eco-anxiety.

Significance of young people

The significance of researching young people and climate change-related issues, including eco-anxiety, is becoming more widely acknowledged (Hickman et al., 2021). It can be argued that it is essential to include young people in research on eco-anxiety because they are more likely to experience the negative effects of climate change in the future. They will have to live with its environmental, social, and economic impacts. Moreover, studying the experiences of young people with eco-anxiety is important since they may be more susceptible to it compared to older generations, given that they are more aware and concerned about climate change (Gislason et al., 2021; Martin et al., 2021). They are more aware and concerned because they have grown up during a time when it is a more visible and pressing issue. This is largely due to the fact that climate change has received widespread media coverage and has been highlighted through social networks and school education, emphasizing its danger to the planet (Martin et al., 2021).

Furthermore, it is important to remember that young individuals will be the decision-makers in the near future. Therefore, their concerns about climate change and their experiences with eco-anxiety should be taken seriously by researchers and

policymakers. By studying the experiences and concerns of young people, policymakers can gain insights into the priorities and values of the soon-to-be leaders of the world. This knowledge can help to create more sustainable policies that consider the long-term implications for young people and the environment.

In the present study, young people are defined as individuals aged 18 to 25 years. This range of age was chosen because it symbolizes a critical time in a person's life when they are transitioning from adolescence to adulthood and may be more sensitive to stressors (Arnett, 2000), such as climate change.

While some studies regarding eco-anxiety have included participants aged among these years (Hickman et al., 2021; Ojala, 2012c), to my knowledge, only one study (Kelly, 2017) has specifically focused on individuals aged 18-25.

Vicarious reactions to climate change

Mental health impacts of climate change can be categorized into direct, indirect, and vicarious (Berry et al., 2010). While most studies have focused on the direct impacts (i.e., those that occur after personally going through an extreme weather incident), this paper will focus on vicarious reactions. The latter refers to the emotional impacts experienced through awareness of climate change.

In some cases, there might be some debate and gray area around what counts as directly experiencing an extreme weather event and what counts as a vicarious experience. For instance, some might consider someone who breathes in smoke from nearby wildfires as having a direct experience, while others might categorize it as an indirect or vicarious one because their house did not burn down, or they did not lose someone close. This ambiguity is further exacerbated by the fact that different sources and studies have different definitions of what counts as a direct or indirect experience of extreme weather events. In this paper, “experiencing climate change vicariously” refers

to individuals that have not personally experienced any extreme weather events (e.g., hurricanes, tornadoes) but feel distressed by being aware of the environmental crisis through media or other indirect means (e.g., socializing). Taking back the previous example, in this research, individuals who experience smoke from nearby wildfires would still be classified as having a vicarious experience. This is based on the notion that their physical and emotional impacts may not be as severe as those who have experienced the extreme weather event firsthand.

Little research has been done on vicarious reactions. However, evidence suggests that exposure to media and other sources, even without direct experience, can cause eco-anxiety, resulting in panic attacks, insomnia, or obsessive thinking (Clayton et al., 2017; Usher et al., 2019). Simply being aware of climate change and its consequences can also induce emotions such as guilt, sadness, and anger, contributing to eco-anxiety (Pihkala, 2020).

Psychological effects of eco-anxiety

Eco-anxiety can cause a wide range of negative psychological impacts on young people. These include anxiety, stress, fear, hopelessness, depression, despair, worry, anger, and guilt (Godden et al., 2021; Ojala, 2012c; Plautz, 2020; Ratinen & Uusiautti, 2020). Furthermore, eco-anxiety places children at risk of sleep disorders, phobias, and substance abuse (Burke et al., 2018).

Children and teenagers have been the main subjects of these studies on young people with eco-anxiety. Nonetheless, there have been two studies (Hickman et al., 2021; Kelly, 2017) that have focused on an age group similar to the present study (18-25), and which have found relevant results. Hickman et al. (2021) surveyed 10.000 individuals aged 16-25 and found that they feel fear, sadness, anger, hurt, despair, powerless, grief, helpless, guilt, and depression about climate change.

These distressed emotions were linked to being dismissed by the adults around them and feeling betrayed by governments and their insufficient climate change action. Furthermore, the study found that eco-anxiety can lead to pessimistic beliefs such as the future is frightening, people have failed to care for the planet, and humanity is doomed. Other pessimistic beliefs are things they value will be destroyed, they won't have access to the same opportunities their parents had, and they are hesitant to have children and security is threatened). Similarly, an increasing percentage of young people (aged 18-25) are depressed, worried, and angry about climate change, as evidenced by Kelly's (2017) study. The study also showed that feelings of frustration with people in positions of power emerge as these figures are not tackling the issue effectively (according to the young people in her study). In addition, eco-anxiety also led some young individuals to decide not to have children and distrust the media (i.e., feeling the media downplays the issue).

It is worth mentioning that a systematic review of qualitative studies regarding anxiety responses of adults of all ages to climate change (Soutar & Wand, 2022) identified recurring themes in the literature. These themes include worry about threats to livelihood, worry for future generations, worry about apocalyptic futures, anxiety at the perceived lack of response to climate change, competing worries (i.e., people find it difficult to prioritize climate change amid other more urgent issues in their everyday lives), and feeling helpless and disempowered.

However, relatively few qualitative studies were identified to conduct the review (Soutar & Wand, 2022). Only six of the studies examined were entirely qualitative and the other nine papers employed mixed approaches. This highlights the need for more qualitative studies on eco-anxiety. Moreover, only one study included in the review (Anghelvec et al., 2015) focused on young people in an age range (concretely, 20-28)

similar to the one in the present study. This emphasizes that there are even fewer qualitative studies on eco-anxiety that specifically concentrate on young adults.

Contextual factors of experiencing eco-anxiety

To understand the psychological experiences of young people with eco-anxiety it is important to understand other aspects of their experience. This information entails how young individuals understand climate change and their experiences going through minor weather events caused by it.

Understanding climate change

Individuals' perception of climate change can affect their degree of anxiety and involvement in environmental issues (Clayton et al., 2017; Ojala, 2013). However, there are some discrepancies in the literature about how this perception affects the level of anxiety and environmental engagement. Some studies suggest that a greater understanding of environmental issues can decrease anxiety levels and increase environmental engagement, while other studies suggest the exact opposite.

For example, individuals who possess a better understanding of climate change tend to exhibit higher engagement in pro-environmental behaviors, as highlighted by Ojala (2012c) and Whitmarsh (2011). This increased engagement can be attributed to their heightened sense of personal responsibility for the environment. In addition, having a lack of knowledge and misconceptions about climate change can lead to higher anxiety due to the uncertainty and complexity of the issue (Weber & Stern, 2011). However, the latter study did not address the relationship between lack of knowledge and lack of pro-environmental action.

On the other hand, other studies have found that having a better understanding of the severity of climate change might result in feelings of extreme anxiety and despair, which can, in turn, reduce engagement in environmental action (Clayton et al., 2017;

Reser et al., 2012). Realizing the scale of the issue might seem overwhelming, making people believe that their efforts will not make a difference (Clayton et al., 2017).

The discrepancies in the literature could be explained by different reasons. One explanation could be that other factors, such as personal beliefs, social support, or coping mechanisms, may have an impact on the relationship between climate change knowledge and anxiety or involvement. In addition, the concrete nature of the knowledge and how it is presented or acquired could also play a role.

Overall, it appears that more research is still needed to properly understand the connections between people's anxiety levels, engagement in environmental action, and understanding climate change. However, what appears to be clear is that individuals' perceptions of climate change can affect the severity of their eco-anxiety, either positively or negatively, which is why the present study has chosen to consider it.

Experiences of going through minor weather events

While the focus of this study is on young individuals who experience climate change vicariously, it is important to consider minor weather events that are caused by climate change, such as heat waves and heavy rainfall (Berry et al., 2010). Even though they are less severe than extreme events, minor weather events can still cause significant distress. For instance, experiencing heat waves, which are increasing in intensity and frequency as a result of climate change, can lead to high levels of anxiety, stress, and depression (Thompson et al., 2018).

A reason why minor weather events are frequently overlooked in eco-anxiety research may be that they usually do not result in as much physical harm or negative mental health outcomes as extreme events. Still, this does not imply that they should not be considered. Because minor events are more frequent and likely to happen in some areas, they are a more consistent source of anxiety and stress for people (Berry et al.,

2010). Overall, minor weather events can make people feel more vulnerable and make the environmental crisis seem more immediate, which can contribute to eco-anxiety (Clayton et al., 2017).

Coping with eco-anxiety

This study uses the transactional model of coping proposed by Lazarus & Folkman (1984). This model states that individuals employ coping strategies to manage negative emotions and stress and that the coping mechanism they choose will impact how they behave and how they feel psychologically. Applying this model to eco-anxiety, previous studies have shown that how individuals cope with climate change psychologically can impact their emotional well-being and engagement in environmental issues (Ojala, 2012a, 2012c; Ojala & Bengtsson, 2019).

It is important to note that coping also involves handling perceived dangers to the well-being of others, not only threats to one's well-being. These "others", in the context of climate change, could be individuals residing in various regions of the globe, animals, and present and future generations (Ojala, 2012c).

Lazarus and Folkman's coping theory distinguishes between two main coping methods: problem-focused and emotion-focused coping. Problem-focused coping refers to when an individual attempts to deal with the stress or problem directly. The aim is to manage the stressor by finding a practical solution, rather than just emotionally reacting to it. In the context of young people coping with eco-anxiety. Problem-focused coping mechanisms may include individual and collective strategies, according to a study about how children, adolescents, and young adults cope with climate change (Ojala, 2012c). Individual problem-focused strategies involve young individuals attempting to contribute towards reducing the impact of climate change, such as making plans about what to do and direct actions. The latter can be, for instance, recycling, taking public

transport, saving energy, buying environmentally friendly products, or following a vegan or vegetarian diet. In contrast, in the context of this study, collective problem-focused coping refers to thinking that things will ultimately work out well if everyone works together to mitigate climate change. The latter might involve businesses developing sustainable products, governments establishing green policies, and communities working together to reduce their carbon footprint (e.g., participating in community clean-up events or recycling programs).

Emotion-focused coping refers to efforts made by an individual to manage or get rid of the emotional distress caused by the stressor or problem, rather than addressing it directly (Lazarus & Folkman, 1984). In this study, it refers to the efforts made by a young individual to manage the emotional distress caused by eco-anxiety. Four main emotion-focused strategies were identified by Ojala (2012c). First, de-emphasizing the seriousness of the climate problem, which included the following sub-themes: (1) The notion that the climate threat is greatly overstated, non-existent, or even beneficial to oneself and society, (2) egocentric thinking, which refers to seeing climate change as a problem but not worrying about it, for instance, because the individual lives in a "safe" country or because the harmful effects of climate change will happen so long in the future that they will not even be alive to see them, (3) relativization of the problem, for instance by comparing it to other more important (according to the individuals) threats. The second emotion-focused strategy identified was distancing. Rather than attempting to downplay or reject the gravity of climate change, here the individual tries to distance themselves from the negative emotions that the threat has triggered. A sub-theme that emerged from distancing was distraction. This can involve either intentionally shifting the focus away from climate change (cognitive distraction) or engaging in alternative activities (behavioral distraction), such as socializing with a friend or participating in

sports. Another sub-theme was avoidance, in which the person either refrains from thinking about the environmental threat (i.e., cognitive avoidance) or evades information regarding climate change (i.e., behavioral avoidance), for example, by stopping to read the news. The third emotion-focused strategy identified was social support. This entails regulating eco-anxiety by either conversing with others, such as friends and family or seeking the company of others to enhance the sense of security. Finally, hyperactivation was also identified as an emotion-focused strategy. Bengtsson (2003, as cited in Ojala, 2012c) explains that this strategy does not involve attempts to diminish anxiety about climate change; rather, it involves strategies that may intensify negative emotions by heightening awareness and adopting a passive focus on the threat. For instance, some young people resort to fatalism, accepting that the world will end due to climate change. Others express their feelings of helplessness, while some dwell on feelings of guilt and worry in a ruminative manner, believing that things will only worsen and humans will be solely responsible for the planet's demise.

In addition to problem-focused and emotion-focused strategies, a third method of coping has been used to complement the previous ones, known as meaning-focused coping. Meaning-focused coping strategies involve attempting to find personal meaning or significance in a difficult or stressful situation, rather than only focusing on changing the situation itself or managing one's emotions related to it (Folkman, 2008). It is particularly relevant when the stressor cannot be immediately resolved but requires active involvement (Folkman, 2008), which fits with the stressor of climate change. Ojala (2012c) identified three main meaning-focused strategies. First, positive reappraisal, which involves reframing the situation in a more positive or constructive light. For example, providing historical context to the issue or acknowledging that while climate change is a significant concern, there has been a recent increase in awareness

about it, which is good. Another way is framing worst-case scenarios as potential opportunities. For instance, people may start making more of an effort to solve climate change when they begin to witness its negative consequences in developed countries.

The second meaning-focused strategy identified was positive thinking/existential hope (i.e., approaching the issue of climate change with a positive and hopeful mindset). This can include, for instance, believing that the issue will eventually be resolved or forcing yourself to have hope. The third and final meaning-based strategy identified was having trust and confidence in different sources outside oneself. In her study, trusting in the progress of science and technology was the most common sub-theme, followed by trust in active peers, God, humanity, and politicians. Young adults only put their trust in active peers, while children and teenagers also relied on the beforementioned sources (Ojala, 2012c). This is interesting because it suggests that as people grow older, their sources of trust and confidence may shift from external sources (e.g., politicians) to those closer to themselves, such as their peers.

Emotion-focused coping, and specifically, distancing from climate change, was found to be the most used coping strategy for eco-anxiety among children, adolescents, and young adults overall (Ojala, 2012c). Interestingly, the most used strategy among young adults was problem-focused coping. However, her study was conducted using a questionnaire, which may have limited the participants' responses, and did not focus specifically on those with vicarious reactions.

The current study has taken Ojala's (2012c) coping strategies classification as a framework because it was the first study (and only one of the few) that studied in detail (i.e., identifying several strategies and their sub-themes) how young individuals cope with eco-anxiety using the model of Lazarus & Folkman (1984). Nonetheless, it is important to remember that additional or other strategies and sub-themes of problem,

emotion, and meaning coping could also appear in new data, besides the abovementioned ones.

The connection between coping and pro-environmental behavior

Regarding how the coping strategies are linked with mental health and pro-environmental behaviors, a study on 12-year-old children (Ojala, 2012a) found that using problem-focused and meaning-focused coping strategies was positively associated with pro-environmental behavior. However, de-emphasizing the seriousness of climate change (i.e., emotion-focused coping) was negatively linked to it. The same results were found in adolescents (Ojala, 2013) and in late adolescents (i.e., 17-year-olds) (Ojala & Bengtsson, 2019). Furthermore, using problem-focused coping was also linked to having a general negative effect on mental well-being (i.e., feeling more eco-anxiety on a daily basis) (Ojala, 2012a). However, emotion-focused and meaning-focused coping were linked to an overall positive effect on mental health. A difference between this study and Ojala's (2013) study on adolescents was identified, as meaning-focused coping did not have a significant negative relation to general negative effect in the latter.

Nevertheless, the studies discussed above have not primarily focused on young people aged between 18 and 25. In the majority of these studies, the definition of "young people" included children or adolescents. Only Ojala (2012c) included young people around the age of the current study's participants (i.e., university students) in the sample. Furthermore, additional research is needed in this area because there is not enough evidence to determine how young people cope with eco-anxiety (Godden et al., 2021; Reyes et al., 2021).

Method

Procedure and Measures

To address the research questions outlined in the introduction chapter, a qualitative analysis was conducted using semi-structured interviews and interviewee demographics. The aim was to understand how young people (individuals aged 18-25) with vicarious reactions to climate change experience eco-anxiety and cope with it.

Qualitative in-depth semi-structured interviews were chosen because they allow a flexible approach (i.e., by asking follow-up questions, participants can speak more freely and provide more details) while still maintaining a level of structure (Creswell, 2013). Since eco-anxiety is still an understudied topic (Coffey et al., 2021), this flexibility was necessary for developing a deeper understanding of the participant's experiences and insights on the research topic itself. Other methods, such as surveys, have a rigid structure that does not allow for probing beyond what has been predetermined (Creswell, 2013), thus limiting flexibility. Choosing a qualitative design was not only adequate for answering the research questions but also contributed to closing a gap in the methodology used to investigate eco-anxiety (i.e., most studies examining this phenomenon have utilized quantitative methods).

The first part of the interview was designed to know how young people understand climate change. As previously stated, understanding how individuals interpret and perceive climate change is important because their perception of the subject can affect their degree of anxiety and involvement in environmental issues (Clayton et al., 2017; Ojala, 2013). Hence, to achieve the abovementioned goal, questions like 'How would you summarize what climate change is?' and 'Where do you usually get information about climate change?' were asked (see the complete list of questions in Appendix B).

Even though this study is focused on young people that vicariously experience climate change, it is still important to know if the participants have gone through minor weather events caused by climate change (e.g., heat waves, heavy rain). Thus, the second part of the interview was designed to know which direct experiences of climate change the participants had. To address this, the questions 'How was climate change directly affected you?' and 'How has climate change directly affected people close to you such as your family or friends?' were included. During this part of the interview, the interviewees were also asked about their nationality, which is relevant because the seriousness with which people perceive the effects of climate change in their countries may influence the level of eco-anxiety they experience (Hickman et al., 2021). Moreover, people's degree of worry and anxiety over climate change may be influenced by their cultural beliefs and values about the environment (Kahan et al., 2011).

Previous studies (Hickman et al., 2021; Kelly, 2017) have shown the negative psychological impacts eco-anxiety can have on young people aged 16-25 (e.g., despair, pessimism, depression). Since these consequences are worrying and, to my knowledge, the existing literature regarding them is limited (especially for vicarious reactions), the third objective was to broaden the limited research on the psychological effects of climate change on young people with vicarious reactions. To address this, the interview included questions such as 'How often do you think about climate change?' and 'How do you feel when you think about climate change and its impacts?'

Finally, the last part of the interview was designed to gain knowledge about the strategies young people with vicarious reactions to climate change use to cope with eco-anxiety. This is necessary as research suggests that the way people cope psychologically with climate change can impact both their emotional well-being and level of engagement with environmental issues (Ojala, 2012a, 2012c). With the intention of

expanding our understanding and gaining better comprehension of this topic, the interview included the questions ‘When you worry about climate change, is there anything you do to make yourself feel better?’ and ‘When you feel anger about climate change, are there particular actions you take?’.

During the interviews, the questions were generally asked in order. However, if the participant mentioned something related to a topic that was scheduled to be discussed later, the order of the questions was adjusted to suit the current topic for the interview to flow naturally. Furthermore, if the participant provided additional information that answered a question that was planned to be asked later, the latter was skipped.

The interviews were conducted via a videoconferencing platform (i.e., Microsoft Teams) during the spring of 2023. The reason why the latter tool was chosen is that it offers many of the advantages of in-person interviews, such as having a face-to-face interaction and seeing nonverbal cues, while also allowing for geographic flexibility. Given that not all the participants were located in the same country and all of them needed to be interviewed under the same conditions to ensure consistency and reduce potential bias (Creswell, 2013), videoconferencing was the most fitting method. Before the data collection, the participants signed a consent form. The interviews had a duration ranging from 25 to 50 minutes, with an average of 39 minutes. They were audio-recorded, anonymized, and transcribed verbatim to facilitate analysis. However, in the results chapter, certain quotes from participants were edited to enhance clarity and readability by eliminating repeated words or filler sounds such as "uh," "eh," "hmm," and so on.

Additionally, the participants completed a brief survey conducted using Qualtrics survey software, which was gathered together with the interview. The purpose

of including a post-interview survey was to collect demographic data on the participants to provide additional insights into the findings obtained through the interviews. Specifically, participants were asked about their age, gender, and the quality of education they received about climate change during childhood and adolescence. Age was used to confirm that the participants were between the ages of 18 and 25. Gender was included because being a female has been identified as a vulnerability factor associated with worrying about climate change (Ratinen & Uusiautti, 2020; Stevenson & Peterson, 2015). Finally, the survey asked about the quality of education received about climate change during childhood and adolescence. This is because Léger-Goodes et al. (2022) suggest that providing quality education during this time may empower individuals to take environmental action, which could lessen eco-anxiety in adulthood. However, Ojala (2012b) found that those who had more climate change education as children felt more personally responsible for environmental issues and were thus more likely to experience eco-anxiety. Moreover, Whitmarsh (2011) found that being exposed to climate change education throughout adolescence was linked to increased worry and anxiety about the issue. Hence, the quality of climate change education during childhood and adolescence could have increased or decreased the level of eco-anxiety of the participants of the current study.

Participants

The participants of this study were recruited through social media (i.e., WhatsApp and Instagram) in April 2023. The study included a total of 7 participants, 3 males (43%) and 4 females (57%), who ranged in age from 22 to 25. There were three inclusion criteria in the recruitment process, the participant had to: (1) Be between the ages of 18 and 25 and (2) identify as experiencing climate change vicariously, meaning that they have not personally experienced any extreme weather events but feel

distressed by being aware of the environmental crisis through media or other indirect means.

Data Analysis

The data collected from the interviews were analyzed using thematic analysis (TA), which is a method that involves identifying patterns and themes within the data and interpreting them (Braun & Clarke, 2012). A TA coding process was chosen because it would allow exploring and drawing conclusions about the phenomenon being studied (i.e., eco-anxiety). This kind of exploratory work is especially helpful because there is currently insufficient knowledge about eco-anxiety. In addition, by grouping data into broad themes, TA would facilitate the examination of datasets and offer flexibility in how data are interpreted (Caulfield, 2022).

To analyze the transcripts of the interviews, Atlas.ti (i.e., software program specialized in qualitative data analysis) was used to conduct a procedure that involved creating codes and generating themes. This was done using both a deductive and inductive approach. A deductive approach was taken because based on the abovementioned existing knowledge, some preconceived themes were expected to appear in the data. As it has been mentioned before, the questions of the interview were thought to fit into four core concepts: (1) understanding climate change, (2) experiences of climate change, (3) psychological effects of climate change, and (4) coping strategies. Then, based on the existing literature, codes (in this case, pre-existing labels developed based on existing theory) that could be applied to the answers given by the participants were identified. Thus, a deductive coding process (i.e., theory-driven codes) took place.

After transcribing the interviews and importing the initial set of codes from an Excel document into Atlas.ti, the reading process began. As the transcripts were being

read, meaningful words, sentences, and paragraphs were coded (i.e., manually selecting a section of the text and assigning a code to it) using pre-defined codes (deductive coding) and newly created codes (inductive coding). The latter were labels derived from unanticipated concepts appearing in the data. The data-driven codes, contrary to theory-driven codes, were obtained solely from the narratives present in the text. To ensure nuanced research, it was important to not ignore the data that arose inductively, which is why an inductive coding process (i.e., data-driven codes) also took place. The data-driven codes were generated through a combination of manual coding (i.e., personally creating the codes) and the use of artificial intelligence (AI) features within the program. A review of the AI-generated codes was conducted to check their quality and accuracy. This review process involved deleting any irrelevant codes that did not align with the research questions, merging similar codes to eliminate duplication, and renaming codes to ensure consistency with the existing literature.

At the end of this phase of the analysis, a total of 213 codes were created. It is important to note that codes that did not appear in the data frequently enough to be considered relevant, that is, codes that appeared in less than 5% of the total data set (Guest et al., 2012), were eliminated, leaving a total of 153 codes.

A deeper comprehension of the data was possible through the coding procedure. However, a code just serves as a descriptive or conceptual label and does not provide a full picture (Friese, 2017). Hence, using both interpretative efforts and a theory-driven deductive approach, the codes were sorted into groups to find themes related to the research questions. A theme is an emerging pattern of meaning from the data that is not merely a summary but rather represents the researcher's perception of the meaning of the data (Braun & Clarke, 2006).

After generating the themes, the next step was reviewing them to guarantee that they were a valid portrayal of the data. In this step, the themes were contrasted with the dataset again to check whether there were any omissions and to make sure that they were genuinely reflected in the data. If issues were found with the themes, they would be changed to improve their utility and accuracy. These changes included merging, dividing, rejecting, or establishing new themes.

On the other hand, the results of the demographic survey were presented in a clear manner (see Appendix A). Each survey was linked to a participant, and the results were primarily used to enrich the information by finding patterns between the survey data, the interview data, and the literature.

Results

The first research question focused on how young people with vicarious reactions to climate change experience eco-anxiety.

Understanding climate change

This section delves into the participants' understanding of climate change, exploring themes of blaming, responsibility, and information sources. In addition, it also examines the potential influence of participants' understanding of climate change on their pro-environmental engagement.

Blaming

When participants were asked to describe climate change, blaming emerged as the principal theme. This could be explained by the fact that the distress associated with eco-anxiety can sometimes result in a desire to assign responsibility and hold accountable those perceived as contributing to or exacerbating the problem (Hickman, 2020). Concretely, blaming humans emerged as the most prevalent theme.

> Climate change... it's basically in the word, so it's a change in the weather and the climate condition of the Earth, and it's basically caused by human action. So, the mere fact that humans are living on Earth is changing the climate that Earth has. (Participant 4, female, 22)

This example is relevant because it concisely captures the participant's understanding of climate change as a result of human presence and activities.

Blaming industrialization and companies ranked as the second most frequent theme. Moreover, one participant directly attributed climate change to capitalism.

> Climate change is the change in the world's temperature because of capitalism. [...] Because the emissions of carbon dioxide are caused because of our productive system of factories, of the car culture, of consumerism, and they can all be summarized in capitalism. (Participant 3, male, 25)

However, it is important to note that participants often viewed industrialization/companies as an extension of humans and therefore perceived them as the same, as illustrated by the following example:

> I mean, I think at this point there is enough evidence, or at least for me, to kind of point that climate change is human made. I think that's the starting point. But in terms of exactly what's the types of actions, I think it has a lot to do with industry and basically using different types of fuels that generate greenhouse gases and a lot of waste. (Participant 5, male, 24)

When discussing the causes of climate change, blaming was often connected to accusations of excessive desire for profit and financial gain at the expense of environmental sustainability and social responsibility.

> I would never do the things that brought us to the situation in which we are, talking about climate change. For example, I would never buy an intensive farm that goes against the health of Earth. So, seeing what we created and what we did and to what extent we're willing to go for different reasons and literally not understanding that this is where we live... Why would you destroy it for money or for other purposes, you know? (Participant 4, female, 22)

> […] On a major level, again, talking about the 1% and big companies, I feel that what's happening is that even if they see it (that climate change is real), which I don't know if they do, but the ones of them who see it don't actually care because again, the pollution and climate change is coming from how much they're producing and therefore how much money they're making. So, they put it up in a balance and it's like, "what do I prefer, climate change and keeping my money and making more money or helping with climate change by making a little bit of less money?" And those people sadly tend to choose money. (Participant 6, female, 24)

These quotes are important as they highlight the participants' frustration and disbelief regarding the perception of greediness and profit-driven motives as underlying causes of climate change.

The responsibility to fix climate change

There was a variety of opinions about who bears the most responsibility to fix climate change. When participants were asked about this responsibility, some (N=3) directly pointed at governments and politicians since according to the interviewees, they have the means to make actual changes through communication and laws.

> First, we can say that, for example, politicians and people more specialized in climate change issues, they have maybe the responsibility, first of all, to get to know which are the problems and how to deal with them; and second of all, to communicate and to make people understand which are the problems and how we should act. (Participant 2, male, 23)

> So, as I said, like as a citizen, I feel we can do some actions to improve it. But I would say that the main figure that could change that would be governments, since I feel like they could have the power to implement some laws and some changes that we have to apply, and we don't have like another choice. But it's also true that it has to do with businesses too, because in the end, most of them are the ones that are really polluting. So, it's kind of a mix. But I feel like without policies coming from the government, a change is not really possible. (Participant 7, female, 23)

However, three participants disagreed, expressing that they believe fixing climate change is a matter of collective responsibility.

> So, yeah, it is a system question, and you can blame the companies, but as long as people don't believe in it and they don't vote for sustainable policies, and they don't basically stop consuming stuff that is bad for the environment because yeah, we do live in climate change. So, I think it's, yeah, it's also everyone's problem to kind of shift that narrative from grassroots up. But it can also be done obviously through legislation, but then to companies doing stuff, but that needs support still from the people. So, I think, in the end, it falls on everyone, not on each individual, but on everyone as a kind of society. (Participant 5, male, 24)

> Everyone, absolutely everyone. You cannot point the responsibility to someone else. I mean, we all live here. We all did it one way or another, so I think we all have the responsibility to address it like you at home, but also like the president of the United States, but also everyone, just everyone. (Participant 4, female, 22)

These quotes are relevant as they refer to the idea that mitigating the impacts of climate change is a shared responsibility that should be done by individuals, organizations, and governments collectively.

While industrialization and companies were largely associated with causing climate change, it is intriguing that only one participant directly expressed the view that they have the greatest responsibility to address the issue. This is interesting because it highlights a potential discrepancy between the perception of responsibility for climate change and the attribution of responsibility for addressing it.

Media and information sources

Another theme that emerged is how young people get information about climate change. When asked about the sources of this information, there was a clear consensus that social media was the main source, and specifically “I feel like especially is in Instagram and Tik Tok, which I know is just a gen z response of me to do […] ” (Participant 6, female, 24). Moreover, three participants stated that they actively seek out information about climate change by following news outlets, environmental activists, or nature-focused accounts on social media. However, the remaining four participants expressed that they do not actively seek information but still come across it.

> I don't really search for it. I just […] I really trust my algorithm because they spent a lot of time making it interesting for me and tailored to my interests. So they are there [news about climate change], but they're there because I kind of wanted them to be there. But it is still biased in the sense that it's totally catered to what I thought would be relevant and what, by extension, what the system thought it could be relevant based on what I think it's relevant. (Participant 5, male, 24)

This example is especially interesting because it highlights the role of personalized content in shaping an individual's exposure to information about climate change. The participant acknowledges relying on algorithms to curate their news feed and deliver content tailored to his interests. However, he also recognizes the bias in this process, as the algorithm selects information based on preexisting preferences and beliefs. The quote suggests that individuals may inadvertently reinforce their perspectives and limit exposure to diverse viewpoints on climate change.

Participants also delved into how they perceive the news. Two participants believed that the news that they read about climate is written in a way to induce panic, stating, “ I feel like if they [the media] are trying to cause a little bit of panic because of the way that it's written and the fact how it's put together, it's a bit dystopian” (Participant 1, female, 23). Another one opined that they are written in an aggressive tone, “I would say basically aggressive. They really make you worry, and with a short

video, you are already really worried about what's going on. And maybe in the newspaper they do it more in a formal way, but still aggressive" (Participant 7, female, 23). Moreover, participants got into more detail on the matter, explaining that they believe that the news on social media has a panic tone to get more engagement and views from the users, as expressed in the following examples:

> That's kind of meant to put panic also because of the 'likes', usually some account just wants to create, you know, people talking about it. So, it's not very well-written, I would say, but it does create a little bit of a scary vibe. (Participant 1, female, 23)

> Well, it is known...And I'm also studying communication so I can get a grasp of it like, it is known that based on how you write titles, more people might read the article or not, as we know. Also, from the clickbait titles on YouTube and all that stuff. (Participant 4, female, 22)

However, one participant had an opposing view, stating that the news is quite passive and that their messages are not strong enough. This is in line with Kelly's (2017) study, where she found that young people feel that the media downplays the issue.

> I would say it's quite passive (the news' tone). I mean, the message is not strong enough. It's more like "this thing is happening right now, but if we keep going like this in x years, let's say a hundred years, two hundred years, these could be the consequences". Maybe saying "this could be the consequences" makes the message not strong enough. […] I feel that the media puts the information only as a message. They don't ask for nothing further to do. Maybe as well, like some measures on what to the could be helpful rather than just saying this is happening and why is happening. Probably, like, encouraging more the message of "we should do this, this, and this" could be more helpful. Then maybe that's maybe lacking a bit, this part. (Participant 2, male, 23)

This quote is important because it highlights the participant's observation about the passive tone of climate change news and the potential need for stronger messaging and actionable solutions. It raises questions about the role of media in promoting proactive engagement and encouraging concrete actions to address climate change rather than solely presenting information about its consequences.

On the other hand, two participants focused more on the fact that, according to them, there is a media bias when talking about climate change. This is exemplified by the following quote:

> I mean, it really depends on who's posting, isn't it? Because Greenpeace is always very catastrophic with a really big sense of urgency or like “stop oil” or, you know, organizations like that. And then there's the BBC reporting quite, you know, from a really centrist point of view of “this happens, some people think this, but also some people think that, so you know, you can think whatever you want, our job is to edit the news”. And then there's the big companies who are like “oh, we're trying to be carbon neutral in ten years”. (Participant 5, male, 24)

Overall, it appears that a good understanding of climate change led some participants (N=4) to experience anxiety and despair, which aligns with findings from Clayton et al. (2017) and Reser et al. (2012). These authors also found that this anxiety and despair can reduce the level of environmental engagement. This is because realizing the magnitude of the issue can be overwhelming, and in turn lead individuals to believe that their efforts will not make a significant difference (Clayton et al., 2017), as reflected in some of the participants' answers, such as this one:

> But, you know, when you see that something is literally consuming your Earth, the planet that you live in, it's again, you feel powerless if you cannot do anything about it, or you can do so little about it. So, I remember crying basically every day for many, many months when I found out about how catastrophic the state of the Earth was, because I remember becoming aware of it when I was really little, but everyone was like “oh, we still have like 15 years to reverse it”. And then, suddenly, I found this publication that was saying that we only had like five years left to reverse it, and then I panicked, I absolutely panicked. (Participant 6, female, 24)

However, while participants expressed feelings of overwhelm and powerlessness, there was no indication in their responses that these feelings led to a decrease in their pro-environmental engagement. This suggests that, despite the majority of participants expressing doubts about the impact of their individual pro-environmental actions, they still actively engage in such behaviors. A possible explanation for this is

that engaging in pro-environmental actions serves as a coping mechanism to mitigate their eco-anxiety, as discussed later in the section on coping strategies.

Experiences of going through minor weather events

This section explores the impact of minor weather events on individuals' lives and their emotional responses, such as frustration, sadness, and anger, among others.

When discussing the experiences of the interviewees during these events, one theme largely emerged: experiencing heat and high temperatures. Nearly all participants shared a common experience of how periods of intense heat imposed limitations on their daily lives, such as having to cancel plans. In some cases, this seemed to lead to feelings of frustration, as demonstrated by the next examples:

> In Iran, actually, last year, the weather in summer was insanely hot. It wasn't like that at all. My dad also said it, in the past ten years we have experienced such droughts, dry weather. We couldn't even bear to go outside just to have a nice evening. (Participant 1, female, 23)

> In my mind, I just try to be like, “Okay, if tomorrow it's 40 degrees, probably some plans I had that I wanted to do...” Then it's like, “Okay, I will not be able to do that because at 40 degrees, I am not able to be outside receiving the sun, really, and I will not have the same energy because I will be sweating or I will be dead, or I will need much more water than normal, rather than in a day maybe with 20 degrees.” (Participant 2, male, 23)

These quotes provide firsthand accounts of the direct impacts of climate change on participants' lives and the frustration that it causes them. These personal narratives add a human perspective to the broader issue of climate change, emphasizing its immediate and tangible effects on individuals and communities.

In addition, minor weather events can make people feel more vulnerable and make the environmental crisis seem more immediate, which can contribute to eco-anxiety (Clayton et al., 2017). This was reflected in the responses of some participants, in which experiencing minor weather events, specifically heat waves, heightened their feelings of concern and fear about the future. These fears included, for instance, not

being able to maintain their usual routines, limitations on access to water and food, and the potential loss of habitable places to live.

> I've never been used to hot temperatures, but this summer I experienced 35 degrees at midnight, and I could not, I just could not handle it, and it made us actually sometimes go out less at night. And it starts like that, but if you think about the future, what if the temperatures are going to be so high, so extreme... It will change the way we live, and it will change the way we build houses, and it will change the way we hang out. Think about the pandemic, it's not the same thing, but it's one way that it affected our routines, and climate is a major thing that can affect and impact your routine. [...] And that's my thing, imagine if the temperature gets drastically higher or drastically low, and that's just one example, but if we think about more catastrophic things, as they say, what if Venice is not going to exist anymore? Like, that's super scary. I think it affects us in ways that we don't even perceive yet. (Participant 4, female, 23)

> I see a lot of limitations that will affect our lives. So, for example, right now, when I say that it's May and we have 30 degrees in Madrid, I feel like in the future it might not be 30; it might be much higher. And then, we won't be able to be out of our houses at some hours during the day. Then we will have limitations, for example, in the consumption of water, of food, and also some specific kinds of food. So yeah, I basically see that it will really affect us, and we will be really limited, and we will also lose a lot of land where we could live. (Participant 7, female, 23)

These quotes are important because they provide personal accounts of how minor weather events can evoke feelings of vulnerability, concern, and fear among the participants.

Moreover, the limitations on daily life caused by the heat also seemed to evoke sadness. This sadness was triggered, in the case of the participants, by not being able to enjoy and do what they wanted, like meeting friends. Furthermore, experiencing extreme heat awakened feelings of empathy for those who have to endure high temperatures the most, such as people who work outdoors. The following quote exemplifies this:

> […] I'm not doing anything the whole summer, so I can survive. But people who work, it's super hard for them. So, yeah, we were all talking about it, it was the main thing because as I told you, it affects your daily life, like “should we go out tonight?” I guess if it would be 35-40 degrees, I'm not willing to go out. If you want, we can meet at my place where there is air conditioning. It's super sad, it's super sad. The fact that you cannot actually enjoy yourself, doing whatever you

> want, meeting your friends, your family, whatever, because it's hot, it's actually sad. (Participant 4, female, 22)

Finally, going through heat waves also evoked anger in one of the participants. This can be explained by the fact that high temperatures can cause changes in our bodies, such as increased heart rate and physical discomfort. These bodily responses can contribute to feelings of irritability and potentially create a negative mood (Anderson et al., 2000). The participant expressed this anger when she was asked about how often she thinks about climate change.

> Every day that I get out of my house and a heat wave strikes me and I feel like I'm going to faint, inside my head I'm cursing climate change. When I go to my local barista to work, the first think I tell them is “fuck climate change”, because it's so present on our day to day lives. It's impossible not to think about it. (Participant 6, female, 24)

The abovementioned quote underscores the participant's strong awareness of climate change and the inability to ignore its effects, reflecting the significant impact it has on her thoughts and interactions. This example provides a firsthand account of the emotional toll and sense of urgency that individuals may feel in the face of climate change's immediate manifestations.

Psychological effects of eco-anxiety

This section explores the psychological impacts reported by young people experiencing eco-anxiety. These encompassed a range of emotions, including concern, fear, anxiety, helplessness, powerlessness, pessimism, sadness, frustration, anger, and guilt.

Concern, fear, anxiety

Concern played a major role in the eco-anxiety of the interviewed young people, as it was the most mentioned impact. This finding is consistent with Soutar and Wand's (2022) review of qualitative studies on anxiety responses to climate change, where concern emerged as the main theme in the literature.

The main concern that emerged among the participants was the rise in the temperatures and the potential consequences that might bring. The ones mentioned the most by the interviewees were food scarcity (N=4) and limitations on daily life (N=5), such as not being able to get out of the house. In addition, more than half of the interviewees (N=4) also mentioned the well-being of their potential future family among these concerns. For instance, when discussing the impacts of climate change, two participants said:

> I would say the rising temperature because it kind of makes me worry a little bit. I want my grandkids, my future family, to live in normal weather conditions and not have to suffer or not have enough nutrition and enough food because of agriculture. That also kind of gets in my mind as well, like will we be able to have the food that we are having now? (Participant 1, female, 23).

> I mainly think about my own children that I want to have in the future […] And, you know, since I feel like they will be close to me because they are my family, I feel like I'm already worried about them. And these children don't even exist and this future that doesn't even exist. But it's something that worries me the most. I think about my future family living in a world with climate change. (Participant 7, female, 23)

These quotes demonstrate the participants' personal investment in the issue and their desire to ensure a better future for their families. This is interesting because it highlights the emotional and anticipatory nature of eco-anxiety, where individuals project their concerns onto hypothetical future scenarios.

One participant also mentioned severe climate disasters as her main concern, as shown by her statement: “My number one concern, I think, it's huge climate disasters: that could be floods, that could be earthquakes, that could be, I don't know, ice melting and letting out viruses that we don't know anymore, so another pandemic” (Participant 4, female, 22). However, she also shared with other participants (N=3) the concern for limitations in daily life.

> The second concern is what I've been telling you, things like the way we're going to evolve in order to cope with the climate changes: what if it gets so hot that we could not even go out at night or in the day anymore, and we only live in

> our houses and we go out to the malls, and we only go around with cars? What kind of impact does it have? I don't know. I grew up in a place where I can walk everywhere, and if that stops for me, it has a huge mental impact, apart from the physical one, of course, to give an example. (Participant 4, female, 22)

This quote is interesting because it also underscores the participant's personal connection to their environment and the potential mental and physical impacts of drastic changes in her ability to move freely.

Climate change and environmental degradation can lead to the displacement of communities and individuals. Rising sea levels, extreme weather events, droughts, and other environmental challenges can make certain areas uninhabitable, forcing people to migrate to safer regions (Piguet et al., 2011). The concern for migration was also expressed by three participants. One participant, a 23-year-old female (Participant 7), stated, “And then also, I feel like we will see more and more people having to leave their cities because of the consequences of climate change, and that will bring about significant changes in the rest of the world”. Another participant voiced concerns not only about migration but also about the ecosystem's development and the potential collapse of society, among other worries.

> I think, personally, obviously the weather issue and how the ecosystem is generally going to develop. So, you know, should I buy a house close to the ocean or is that risky? Should I have kids or should I not? But it's also a lot on social stuff because I feel like people don't think about this enough, but if actually in 10 or 20 years we will start having like loads and loads of climate change refugees and the food will also start being scarcer, more expensive, like we as a society, even here, where it doesn't affect us that much, are still going to do really bad. So, in the short term, I think is the quality of life and it's more about me and my family and all that. But in the longer term is can we as a society actually deal with that or will we just collapse? (Participant 5, male, 24)

This quote is relevant because it captures the interconnectedness of individual and collective experiences and raises questions about the ability of society to effectively adapt to climate change. On the other hand, the participants' concerns often went beyond personal worry and extended to a broader perspective. This included

considerations for the well-being of individuals in underdeveloped countries and the welfare of future generations.

> Like, I don't know, in Africa, for example, and then they don't have any water or, I don't know, like different parts of the world that suffer a lot more than me right now. Then in the future, if it gets worse with climate change, like what are they going to do? (Participant 1, female, 23)

> Probably the fact of not leaving the planet the same way I got it. So, for future generations, they will not have the same... I mean, that's obvious of course, that the characteristics and the way of living that they will have it will be different anyways. But it's okay to be different, but maybe not worse. So those are maybe concerns I would have. (Participant 2, male, 23)

As evident from the participants' responses, the uncertainty surrounding the future gave rise to numerous questions among them, which in turn led to concerns. These concerns often encompassed a range of emotions, including fear and anxiety.

Helplessness and powerlessness

Helplessness emerged as another major theme among all participants. Sometimes it manifested as a coping mechanism against eco-anxiety (as discussed later in coping strategies), while at other times it simply represented a feeling the interviewees experienced. Participants expressed a sense of being unable to make a significant impact or difference in addressing climate change. For instance, Participant 3, a 25-year-old male, stated, "I feel like I cannot do anything to stop climate change". Helplessness principally arose from a perception of the magnitude of the problem and the limited scope of individual influence.

> I think you can buy sustainable products or not overuse, you know, fast fashion brands that are specifically doing stuff that is harmful. But the history is, as long as the other people don't do it and the companies still produce the products but you don't buy it, it's not that big of a change. So, your change only matters if other people do it as well. I know my personal carbon footprint is not going to change anything, and I know that. But the fact that I sometimes use more sustainable options and that I try to be mindful about what I consume, I think it can, in a broader sense, influence it. But I don't think something that I do personally could change climate change. (Participant 5, male, 24)

This example is particularly interesting because the participant seems to be negotiating between the power he has and does not have to mitigate climate change.

On the other hand, feelings of powerlessness also surfaced among the participants, with some (N=5) expressing a sense of lacking control over the larger systems and structures that contribute to climate change. Their feelings of powerlessness primarily stemmed from two factors. The first factor was the perception that their voices are not heard by governments. Participant 4, a female aged 22, expressed this sentiment by stating, "I don't think there is much you can do about it. It's not that you can change the thought of the Prime Minister." The second factor was the perception that corporations have a dominant influence over environmental outcomes.

> So, I see the data, and I'm like, okay, what? How can I do a change? How can I make a change if that's what you [companies] are doing? You know, I see their impact is so huge that what I do doesn't really matter. (Participant 7, female, 23)

This quote reflects the internal struggle and questioning of how individual actions can make a meaningful impact when larger systemic forces seem to have more influence.

Pessimism

In line with Hickman et al. (2021), most participants expressed pessimistic beliefs as a result of their experience with eco-anxiety, “Maybe because it's a pessimistic outlook, like there's nothing positive about it right now and there's probably not going to be a lot of positive things in the future, even though I think it would be nice” (Participant 1, female, 23).

In most cases, these pessimistic beliefs revolved around the participants' inability to envision a future. Participant 3, a 25-year-old male, expressed this sentiment by saying, "What comes to my mind (when thinking about climate change)? Well, that

we're done.", "I cannot think about myself in 20 years ahead". When asked about imagining her country in 50 or 60 years, another participant added:

> […] it's really hard to imagine a future. Yeah, it's really, it's really difficult. Because you start from small places and then it gets bigger and bigger, like...Yeah, I don't know, I think it would be literally impossible to have at least the same lifestyle. (Participant 4, female, 23)

In addition, Participant 3 (male, 25) expressed the belief that he might not be able to have children, stating, "Probably, I will not be able to have kids".

Interestingly, while migration was only a concern for some participants, one interviewee went beyond mere concern and actually held the belief that migration will inevitably happen when asked about envisioning the future.

> So that's only another scenario that I can picture: a lot of cities, especially the ones that are in countries more in the south, becoming unlivable. So, overpopulation in many places of the world because we'll be forced to concentrate in a specific country, since those will be the only ones with conditions that will allow us to survive. So, lack of resources, lack of space for all of us, and eventually maybe the rich going to Mars and the poor/middle class being left here to die. (Participant 6, female, 24)

Sadness

Sadness is often reported as a common emotional response to eco-anxiety (Pihkala, 2020). A notable number of participants (N=5) expressed feelings of sadness about various aspects of climate change. For instance, Participant 6, a 24-year-old female, expressed sadness regarding the extinction of species, stating, "[...] and it breaks my heart saying it like, again, how many species are disappearing. [...] it just saddens me because those are innocent beings who didn't have anything to do with climate change."

However, the majority of the interviewees' sadness arose from a sense of grief and loss associated with the deteriorating state of the planet and the realization that certain places are no longer and will never be the same.

> […] Then sad with the planet dying probably as well. Mostly, it is kind of sad because you do want the planet to flourish and you know, be good for future generations. But then you see things like, with the fires happening and then the Amazon Forest the other year, like those kinds of things, they just create sadness, like what did the planet do to deserve this, you know? (Participant 1, female, 23)

> Just because it's such a huge thing, realizing that the world that you've been living in is not the same and might not be the same when you grow up. […] I mostly feel, instead of scared, I feel sad, which means that for example, I read on the news that maybe these places will not be the same, are not the same. And I think to myself, being someone that loves traveling and staying in places... Like when I see that those amazing places will not be the same and I don't have an opportunity anymore to visit the same places, it's really kind of sad for me. (Participant 4, female, 22)

These examples illustrate the profound personal connections individuals have with the Earth and their concern for both themselves and future generations' ability to experience its beauty and diversity. These quotes emphasize the emotional impact of climate change and the deep sense of loss it can evoke.

Frustration

Frustration was manifested in different ways by the interviewees and had different targets. For instance, one participant expressed frustration with companies that claim to be sustainable, as they were seen to portray themselves as making substantial contributions to addressing the issue, when, in the participant's perspective, they are not doing so.

> With companies, it's still... Yeah, it's usually still frustration because I know people who work in ESG and other sustainability stuff for social corporate responsibility and all that, and it's all about how you want to make it look. And sometimes, if you actually click on that and read through it, it's way worse than they try to make it appear. So, it's a bit annoying that they're presenting it so nicely, like they're doing their best to do that, when we can kind of know that's not really the case. (Participant 5, male, 24)

This quote is important as it underscores the frustration surrounding greenwashing and the perception that companies are not truly dedicated to addressing environmental issues.

Feeling frustrated with people in positions of power appears to be a common sentiment among young people experiencing eco-anxiety (Kelly, 2017). This sentiment was echoed by some participants who expressed frustration with governments for either disregarding the problem despite having the power to enact change or for shifting the responsibility onto citizens. For example, an Italian participant mentioned that knowing some politicians in their government deny the existence of climate change causes her great frustration.

> I want to cry. Actually, it makes me infuriated, sad, disappointed. This, it makes me feel really awful in general, just because something as important as this is literally ignored or even worse, considered as fake, by people who have the most responsibility of all, because as I said before, they might have the means to change things. (Participant 4, female, 22)

> I basically feel frustrated because I see that I can't really make a change, but at the same time, I feel so bad because they (the governments) are making me feel I should be the one doing, like, changing my lifestyle. So, yeah, it would be kind of basically frustration, and I also can feel sometimes angry towards this way of functioning from the government and businesses. (Participant 7, female, 23)

As evidenced by the aforementioned examples, frustration was often intertwined with feelings of sadness, anger, helplessness, and guilt. Moreover, at times, frustration was fueled by a sense of disappointment. This disappointment primarily stemmed from the participants' perception that society as a whole is unable to unite and address the issue effectively.

> The disappointment is a bit on a wider level. You know, I can't believe that we as a society cannot come together to do these few things that are not that complicated. Because yeah, you can't really point only the government because they say “oh, everyone needs to be carbon neutral by 2030”, and then some people don't support that, and some company will lobby with a lot of money to not do that. So, it's about everyone coming together and the disappointment is more because we can't really be on the same page about it, and we can't really agree on things. (Participant 5, male, 24)

> I just feel that we have so much power as a race. The human race is so powerful, we've dominated many, many stuff, we have dominated stuff that we didn't have the need to dominate, like other species. But we have so much power. And again, so some of us are just like not helping, definitely not helping. And that's

> what I think of climate change, the first thing that comes to mind to me is like "please, people get it together". (Participant 6, female, 24)

The quote of Participant 6 highlights an interesting contrast in her perspective regarding human power and its implications. On one hand, she acknowledges the power of the human race, emphasizing our ability to dominate various aspects, even when it is unnecessary. This recognition of human power implies a potential for positive change and impact. However, the participant also expresses frustration and disappointment with the fact that some individuals are not utilizing this power to contribute positively. The mention of "not helping, definitely not helping" suggests a sense of criticism towards those who do not actively contribute to addressing climate change.

Anger

Eco-anxiety has also been associated with feelings of anger (Godden et al., 2021). Participant 1 (female, 23) expressed, "[...] A little bit of anger, maybe because it's our fault. It's my fault. It's your fault. It's all of us". Anger seemed to arise as an emotional response to the perception that society is collectively responsible for climate change and not taking sufficient action to address it. For instance, when discussing how thinking about the future makes them feel, one participant stated:

> And yeah, even a little bit angry that we kind of let it reach this point, because it's not like we just learnt the results. Climate change has been around for a while and I think only in the last few years, sustainability, like at a systemic or corporate level, it became a thing, but we knew it was an issue before, but it took us so long and it's still taking us so long to do something about it. (Participant 5, male, 24)

The same participant delved deeper and expressed how his anger is directed at the selfishness of individuals who fail to take action to mitigate climate change.

> Uh, because people don't care enough about being on the planet and about others to do something. So, I feel like, you know, people are so, some people are so selfish. It can either be corporate or people who don't want to do anything even though they know about climate change, or people who don't want to give up on anything for the collective good. So that part of selfishness and greediness

> basically kind of makes me angry because I feel like people should care about it more, and they just don't. (Participant 5, male, 24)

This quote is important as it sheds light on the anger directed towards those who prioritize personal interests over the well-being of the planet.

Guilt

Some participants (N=4) also reported experiencing guilt, as they expressed a sense of responsibility or remorse for their perceived contributions to environmental problems or the impacts of climate change (Hickman et al., 2021). Specifically, two participants mentioned that they do not contribute as much as they would like to mitigate climate change. Participant 3 (male, 25), stated, “I don't recycle as much as I wish”. Participant 7 (female, 23), associated guilt with consumption, saying, “I'm more like "I shouldn't be buying that", you know, for me, guilt is related to consumption”. When discussing conversations about climate change with their peers, one participant expressed a sense of inadequacy compared to her environmentally active friend, perceiving that she was not doing enough in comparison.

> What is it, regretful? Is that the word? Like thinking about things? Because then I see what she does, like she goes on protests, and she does all of these things, she only goes thrift shopping. And I don't know, then I kind of feel like “oh, maybe I should also start looking into it”. (Participant 1, female, 23)

This example is relevant because it captures the internal reflection and self-doubt that can arise when comparing oneself to others. It highlights the impact of observing someone's actions and choices in driving personal introspection and a potential shift in behavior. This quote adds depth to the discussion by showcasing the influence of peer interactions on individual attitudes and actions towards climate change.

Coping with eco-anxiety

The second research question focused on the strategies young people with vicarious reactions to climate change use to cope with eco-anxiety. Therefore, this

section will delve into the coping strategies expressed by the participants, encompassing emotion-focused, problem-focused, and meaning-focused strategies. Given that in Ojala's (2012c) study, the most commonly employed strategy among young adults was problem-focused coping, it was expected to observe similar findings in the current study. However, contrary to expectations, emotion-focused coping emerged as the most frequently utilized strategy among the participants.

Emotion-focused coping

The most frequently mentioned strategies among participants primarily focused on emotions. One particularly prevalent strategy was distancing, which involved trying to separate themselves from the issue of climate change. A recurring sub-theme that emerged was emotional detachment, whereby participants described intentionally disconnecting emotionally from the realities and impacts of climate change. From the participants' responses, it can be inferred that their emotional detachment was frequently used as a method of self-protection against feelings of helplessness. This is demonstrated in the following example:

> But again, before, I used to get really obsessed with it, and it would take over my day, and it would take over my week, and it would take over maybe my month. Like, it would really affect me. And right now, even though it affects me and I do whatever I can to change things and also go to protest and volunteer with those animals, I don't feel as responsible anymore. Again, I just decided to... That's also a coping mechanism that I've adopted, to just detach myself from it to a point because otherwise, it was just such an unbearable weight that it consumed me. So, I had to learn to detach myself just a little bit. [...] Because again, for a while, it was really detrimental to my mental health, and now I'm like, you can only involve yourself so much, but you need to be detached to a certain extent in which it doesn't condition your mental health. (Participant 6, female, 24)

Remarkably, the male participants' emotional detachment from climate change seemed to be related to being desensitized due to constant exposure to climate change news or the uncertainty surrounding its impact on their personal lives. This is evidenced in the following examples:

> […] or I just move on with my life. I mean, to some extent, it's kind of been like this for years already. So, it's not, you know, a really strong emotion or something new that happens to me and I need to cope with it. I know the way it is, I know that I feel like this about it, and as I said, this happens a few times a week. So, I think at this point, it's more, you know, you kind of get a little bit desensitized. (Participant 5, male, 24)

> But seeing how it is evolving, I would be a little bit concerned. But as I don't know to what extent it can affect my life, my daily life, or maybe the life of the people coming, being born now for the future, I cannot say I'm super concerned. (Participant 2, male, 23)

The difference between genders aligns with previous research indicating that women often exhibit a stronger sense of responsibility toward environmental issues compared to men (Brough et al., 2016).

Another major sub-theme of distancing was cognitive avoidance, where some participants mentioned that they refrain from thinking about climate change, mostly to avoid feeling sad.

> But I think that's maybe why I avoid it. I try to look at the good things and that's why I don't...I think that's why my subconscious doesn't let me think about that, because it would just make me feel a bit uncomfortable or sad. (Participant 1, female, 23)

On a behavioral level, one participant (Participant 2, male, 25) mentioned that he avoids information about climate change, stating “I don’t follow a lot of things regarding climate change. […] Because I cannot do anything to stop it, so..." This avoidance seemed to be prompted by feeling helplessness.

Even though it was less common, two participants commented that they try to distract themselves when they find themselves worrying about climate change. One (Participant 4, female, 22) stated that “There is not a lot you can do to feel better about it. Like, I just ignore it and think about something. I can just try to distract myself.” Another participant commented that she engages in alternative activities, like going for a walk or reading a book, when she finds herself upset about climate change (i.e., behavioral distraction).

> I'm like, I'm just going to change whatever I'm doing, like, if I'm seeing the news in my phone and then something like that comes up and I get upset, I'll go out for a walk, I'll pick up a book, I'll do something to get distracted for a while and try for it not to get to me. (Participant 6, female, 24)

This quote is important because it demonstrates a conscious effort made by the participant to protect her emotional well-being from climate change-induced upset.

The second most mentioned emotion-focused strategy entailed intensifying negative emotions (i.e., hyperactivation). The majority of participants (N=5) expressed resorting to feelings of helplessness and powerlessness as a means of reassurance. For instance, when asked about what actions they take when they worry about climate change, one mentioned “To be honest I think I cannot do much on my own and at the same time, whatever I do is very irrelevant” (Participant 2, male, 23). Another interviewee dived deeper into the topic and talked about how when she feels bad for Earth, she thinks about the fact that she cannot do anything. Specifically, she expressed:

> As soon as I see like catastrophic images or facts, I kind of feel bad, especially bad for the Earth. Just like, I feel bad, this is the planet that I live on. This is the planet that has given me so many things, so many possibilities. And then I see these things happening, and I'm thinking “oh, I feel very bad, but also I cannot change anything”. (Participant 1, female, 23)

This quote is interesting because it underscores the internal conflict between caring deeply for the planet and the perception of individual powerlessness to effect significant change.

In addition, two participants referred to fatalism, commenting things like “I don’t think there is a solution, and I don’t think I can do anything about it. I know that it’s bad” (Participant 3, male, 25). They seemed to activate feelings of despair to make themselves feel better. The hyperactivation strategies mentioned by the participants are in line with what Bengtsson (2003, as cited in Ojala 2012c) says on the matter, which is that people increase negative emotions by enhancing awareness and adopting a passive orientation towards the threat, in this case, climate change.

Another emotion-focused coping strategy was seeking social support. Three participants mentioned that they "Often talk with my friends about it" (Participant 6, female, 24). One of the reasons for seeking social support is that sharing worries and frustrations with friends can provide a sense of relief and emotional catharsis (Thalwal, 2021), which was emphasized by a participant:

> Yeah, I mean, I sometimes complain about it, you know, I think that always helps and the cathartic experience of kind of letting it out. So, I talk about it with my friends or with people or I send the news and go "oh, this happened again". (Participant 5, male, 24)

Finally, two participants explained how they de-emphasize the seriousness of the problem as a coping mechanism. This was done primarily by relativizing the problem of clime change "As probably I would say that there are other priorities right now in the world, or at least that's what I feel" (Participant 2, male, 23).

Problem-focused coping

Despite problem-focused coping not being the most commonly employed mechanism overall, using individual problem-focused strategies was mentioned by all participants. All of them described managing the stress of climate change by directly engaging in individual actions. These actions included purchasing environmentally friendly products, reducing consumption, using sustainable transportation, saving water and energy, and following a vegan diet. However, recycling emerged as the most frequently mentioned action (N=5). Participants expressed that they do these actions in order to feel that they are contributing to mitigating climate change, suggesting a pattern among their motivations. For instance, when asked if they do any particular actions when they worry about the climate, one participant mentioned:

> In the last years, even at my family's place or on my student place as well, I am trying to recycle properly. I'm trying to do it the best way possible, and I would say that's my contribution. (Participant 2, male, 23)

Another participant provided additional details in her answer, elaborating on her actions and mindset regarding climate change, as expressed in the following statement:

> Recycling, basically, or maybe not throwing cigarettes on the floor, or limiting my use of water or, uh, I don't know, for example, I have an electric car, we have solar panels, so they're not really so small things, a little bit bigger. […] I'm actually doing these things, so I think I'm kind of contributing, but not in the sense "I'm contributing so yeah, give me a medal". I think that we all have our responsibility, so it's what everyone should be doing. (Participant 4, female, 22)

In the abovementioned example, the participant expresses that she believes that she does not do pro-environmental actions to seek recognition, but because she believes that is a matter of collective responsibility and civic duty.

Meaning-focused coping

In line with Folkman's (2008) definition of meaning-focused strategies, a few participants (N=4) mentioned some strategies that involved attempting to find personal meaning or significance in a difficult or stressful situation (i.e., climate change). For instance, two participants explained that they have trust and confidence in different sources outside themselves in the sense that they believe these sources will solve the problem. These sources included scientific and technological advances and society's collective action and expertise, which are mentioned in the following quotes:

> I don't know to which extent, but human concern will make technology create some devices or some new trends in order to keep up with the climate change problems. [...] As every year, people are more concerned about that, for sure more money, more effort, and more time will be put in order to create new devices or just to get to know better how climate is changing. I guess, I don't know to what extent, of course, that's a hundred percent uncertain, but I guess that new things will come up in the following years. (Participant 2, male, 23)

> I think that it's difficult to be calm because I feel like I have no power at all to change that. But then I also tried to believe in in society, honestly. And I think that, yeah, there's Trump, as an example, that he's doing that [not caring about climate change]. But then we have a lot of people and a lot of professionals that know what they do and are aware of climate change and want to make a change to improve the situation. So, I kind of try to think that a lot of people are concerned about this and that people will get in authority positions and we'll make a change. (Participant 7, female, 23)

These quotes are relevant because they highlight the participants' perspectives on the potential role of technology and societal change in addressing climate change. The first quote suggests that human concern will drive technological advancements and new solutions, while the second quote emphasizes the participants' belief in the collective efforts of professionals and individuals in positions of authority to make a positive impact on the issue. Both quotes provide insights into the participants' hopes and expectations for the future in relation to climate change.

On the other hand, there was one participant who approached the issue of climate change with a positive and hopeful mindset. When she (Participant 6, female, 24) was asked why she remains hopeful, she stressed that she believes that the issue will eventually be resolved, partly because "[…] It's just my personality. I've always been such an optimistic person going through everything in life. I want to believe that the best outcome is what will actually happen", but also because "I feel like it's a way of not having a daily mental breakdown". These two examples concur with two sub-themes of positive thinking/existential hope identified by Ojala (2012c): believing that the issue will be eventually resolved and forcing oneself to have hope. The latter aspect was elaborated upon by the participant, providing more details about her perspective:

> Because is either that or nihilism, one of those two things to use as a coping mechanism to keep pushing forward. Because if we just got stuck thinking about how things are right now and how they can possibly be and took no action, we wouldn't keep moving forward. And literally, to be honest with you, there was a time in which I had serious climate anxiety, and it would make me cry every single day. So, it's like if I don't stay optimistic, I wouldn't leave my bed. So, that's a coping mechanism that I have to have. (Participant 6, female, 24)

The quote is interesting because it emphasizes the participant's perspective that she have no other choice but to adopt a positive mindset. She views optimism as essential for survival and as a means to continue progressing despite the challenges posed by climate change.

In conclusion, the results indicate that while emotion-focused strategies were the most frequently mentioned, each participant used a combination of coping strategies, particularly emotion-focused and problem-focused approaches. This suggests that participants did not limit themselves to a single type of coping strategy, but rather employed multiple strategies to address their eco-anxiety.

Conclusion

This study aimed to examine how young people with vicarious reactions to climate change experience eco-anxiety and explore the coping strategies they employ. Through a comprehensive analysis of the interview data collected, this study offers valuable insights into eco-anxiety and its implications, enhancing our understanding of this phenomenon.

The first question that this study aimed to answer was how young people with vicarious reactions to climate change experience eco-anxiety. To examine this, two contextual factors were considered. The first factor examined how young people understand climate change, revealing the following: When summarizing climate change, participants frequently attributed blame to humans, industrialization, and companies. This attribution of blame can be considered a manifestation of eco-anxiety, as the concern surrounding climate change often drives individuals to seek out responsible parties for the crisis (Hickman, 2020). However, although industrialization and companies were often linked as the main perpetrators of climate change, it is interesting that only one participant acknowledged their primary responsibility in addressing the issue. This observation suggests a possible gap between the perception of responsibility for climate change and the actual responsibility for addressing it.

In addition, some participants perceived a panic-inducing or aggressive tone in climate change-related posts on social media. This suggests that how information is communicated can potentially contribute to eco-anxiety, as sensationalized or fear-based messaging may heighten feelings of distress and helplessness (Merry & Mattingly, 2023). These results contradict Kelly's (2017) findings, which found that young people perceive that the media minimize the issue.

In line with Clayton et al. (2017) and Reser et al. (2012), in the present study it was observed that understanding climate change could lead certain participants to experience anxiety and despair. However, this emotional response did not appear to diminish their engagement in pro-environmental actions, contradicting the findings of Clayton et al. (2017). Despite harboring doubts about the individual impact of their actions, participants still actively participated in pro-environmental behaviors, possibly as a means of coping with eco-anxiety.

The second contextual factor was experiencing minor weather events. Going through heat waves heightened feelings of vulnerability, concern, and fear about the future among participants. This is an important contribution because it suggests that experiencing minor weather events can trigger eco-anxiety, most likely because they make the environmental crisis feel more imminent (Clayton et al., 2017).

The participants interviewed expressed various psychological impacts associated with eco-anxiety, including concern, helplessness, powerlessness, pessimism, sadness, frustration, anger, and guilt. These effects have been previously identified in other studies (Godden et al., 2021; Hickman et al., 2021; Kelly, 2017; Ojala, 2012c; Plautz, 2020; Ratinen & Uusiautti, 2020). Among these impacts, the most reported one was concern, encompassing issues such as rising temperatures, food scarcity, limitations on daily life, the well-being of future generations, severe climate disasters, and migration.

The second question of this study concentrated on how young people with vicarious reactions to climate change cope with eco-anxiety. Emotion-focused coping strategies were the most frequently utilized among the participants. In particular, the most prevalent emotion-focused strategy was distancing themselves from the issue of climate change (e.g., such as by avoiding thinking about it). This is in line with the existing knowledge on coping strategies (Ojala, 2012c).

On the other hand, all participants employed problem-focused coping strategies. However, contrary to the findings of Ojala (2012c), these strategies were not the most frequently utilized, as participants reported employing emotion-focused strategies more frequently. The interviewees expressed that they engage in individual actions such as recycling to feel like they are helping to mitigate climate change, which also follows the findings of Ojala (2012c)

Finally, meaning-focused coping strategies seemed to be the least frequent way of coping, as they were the least reported ones. They involved trusting in scientific and technological advancements and society's collective action and expertise to fix the issue and having a positive and hopeful mindset.

Overall, these findings suggest that participants employed a combination of different coping strategies, particularly emotion-focused and problem-focused approaches, to address their eco-anxiety.

The study yields new insights by exploring the experiences and perspectives of young people with vicarious reactions to climate change. Specifically, its in-depth and qualitative approach provides valuable insights into a relatively under-studied population. On a theoretical level, it extends our understanding of how underlying factors can influence eco-anxiety, such as how climate change is understood and experienced by young individuals, as well as how it is portrayed in the media. In addition, this study contributes to previous literature by enhancing our understanding of the psychological impacts of eco-anxiety and the specific coping strategies employed to address it.

On a practical level, the findings emphasize the need for action and the importance of addressing eco-anxiety as a valid psychological response to climate change. This paper provides valuable insights for mental health professionals.

Understanding the psychological impacts of eco-anxiety on young people and the coping mechanisms they employ can guide the development of effective strategies to support these individuals in managing their eco-anxiety. Integrating eco-anxiety into mental health assessments and treatment protocols can ensure that individuals experiencing eco-anxiety receive appropriate support.

However, a critical reflection on the research conducted and the results found is essential for understanding the limitations of this study. Firstly, the sample size of the study was relatively small, consisting of seven participants. This limits the generalizability of the findings to a larger population. Another limitation is the reliance on self-reported data obtained through semi-structured interviews. The participants' responses may be influenced by social desirability bias (i.e., they provide answers they believe are acceptable), especially because they were known by the interviewer. This bias could lead to underreporting or overreporting of certain experiences or coping strategies related to eco-anxiety. Lastly, while thematic analysis is a valuable method for exploring themes within qualitative data, it is influenced by the researcher's interpretations. Different researchers may generate different themes or interpretations from the same dataset, highlighting the potential for researcher bias in the analysis process.

Future studies could address some of the limitations identified in this study. For instance, expanding the sample size could enhance the representativeness of the findings and including more than one coder would reduce the researcher bias. Additionally, to expand our understanding of eco-anxiety, future studies could explore the long-term effects of eco-anxiety on mental health, investigate the role of socio-cultural factors in shaping eco-anxiety and its outcomes, and assess the effectiveness of different interventions and support systems.

This research and its potential extensions are crucial as they contribute to our understanding of eco-anxiety among young people. By addressing this phenomenon, we can develop targeted strategies and policies to support individuals experiencing eco-anxiety and promote mental well-being.

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Appendix

Appendix A: Table 1

Characteristics of the participants

Participant	Age	Gender	Quality of climate change education	Comment on quality of education
1	23	Female	Average	/
2	23	Male	Average	/
3	25	Male	Average	I have received from an early age some basic information about what climate change is, possible consequences of not taking care of it and measures to take on. But, at the same time, I haven't received much detail about it nor I have done further research about it.
4	22	Female	Average	I think that growing up in a Valley taught me a lot about the environment, especially during my childhood. However I think that more is needed
5	24	Male	Average	In Eastern Europe is not mentioned as much as it could be.
6	24	Female	Average	/
7	24	Female	Average	I feel I only learnt about it in the end of my education. And it was always the same basic information. It was good since I learned good habits (when recycling for instance) but I would have liked to learn more about the bigger picture.

Appendix B: Interview procedure scheme and list of base questions asked to the participants

Introduction statement by interviewer:
In this interview, we will be talking about your experiences of climate change. This is meant to be an informal discussion. I have questions that I'll ask to guide that discussion, but you are free to talk about whatever you'd like to talk about most, so long as it is related to climate change. You can say as much or as little as you like when answering a question. If you do not want to answer a particular question, let me know, and we can move onto the next one. As a reminder, you can also ask to end the interview at any point. Do you have any questions before we begin?

Understanding climate change

1) How would you summarize what climate change is?
    a. What do you think are the most important causes of climate change?
    b. What do you think are the most important impacts of climate change?
    c. How do you envision the world in 50 years?
2) Who do you think bears the most responsibility for climate change and why?
    a. Do you think that they are doing enough to address climate change?
3) What changes do you think need to happen to effectively address climate change?
4) What role do you feel you should play in these changes?
    a. Do you feel that you are fulfilling that role?
5) Where do you usually see or get information about climate change?
    a. How do you perceive the news you see about climate change?

Experiences of climate change

1) How has climate change directly affected you?
    b. What did you feel when you were experiencing the minor weather event?
2) How has climate change directly affected people close to you such as your family or friends?

Psychological effects of climate change

1) How often do you think about climate change?
    a. When you think about climate change, what do you think about most?
    b. What concerns you most about climate change?
2) How do you feel when you think about climate change and its impacts?

Coping strategies

1) When you worry about the effects of climate change, are there particular actions you take?
2) When you feel anger about climate change, are there particular actions you take?

Closing statement by interviewer:

Thank you for your participation in this interview. Do you have any questions? Having participated in the interview would you like to review your consent form? If you do have questions about the interview, results of this study, or the status of your consent, please do no hesitate to reach out to me or the principal investigator at the email address provided at any point. [provide them with a copy of their finalized consent form]